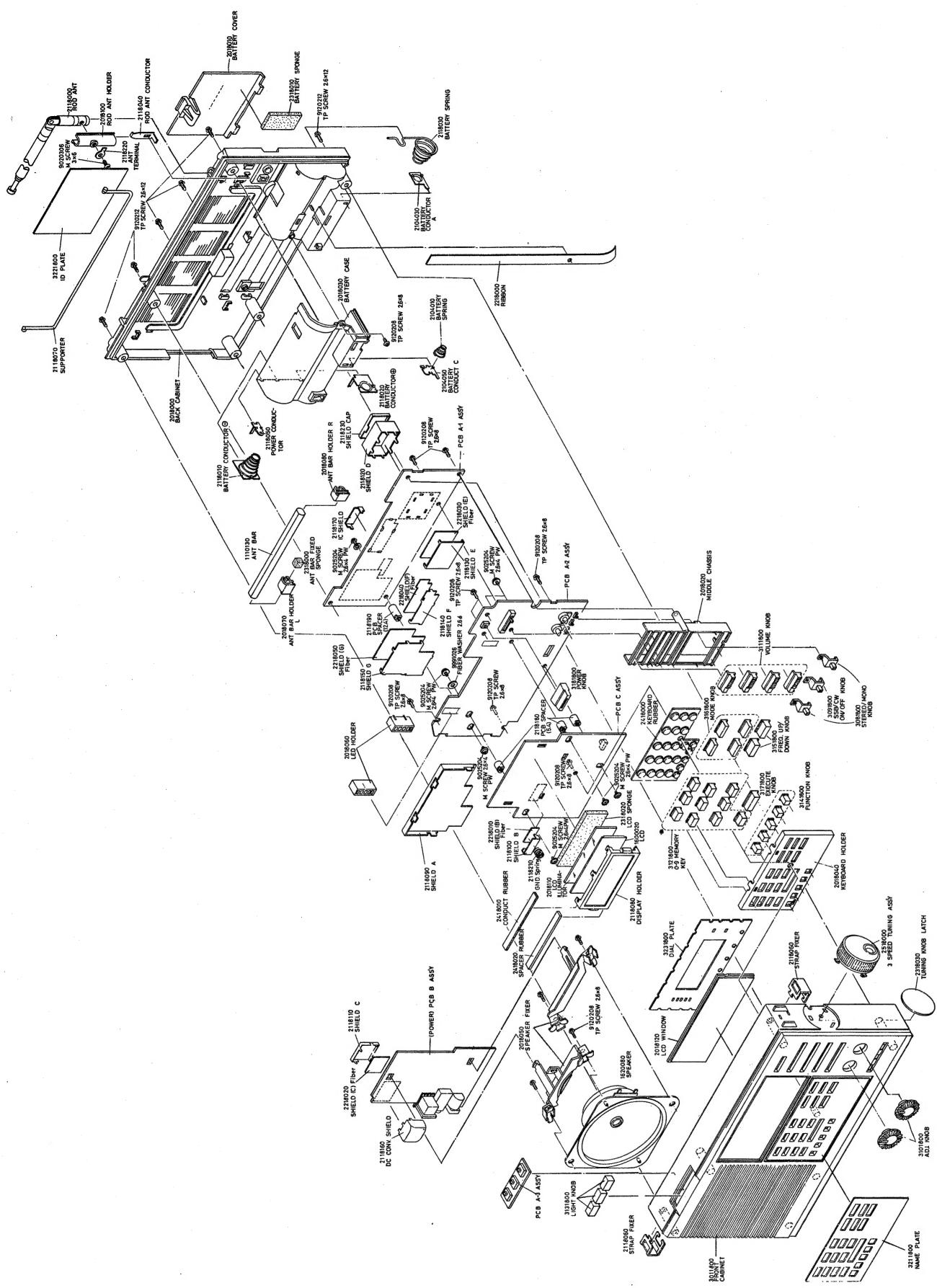
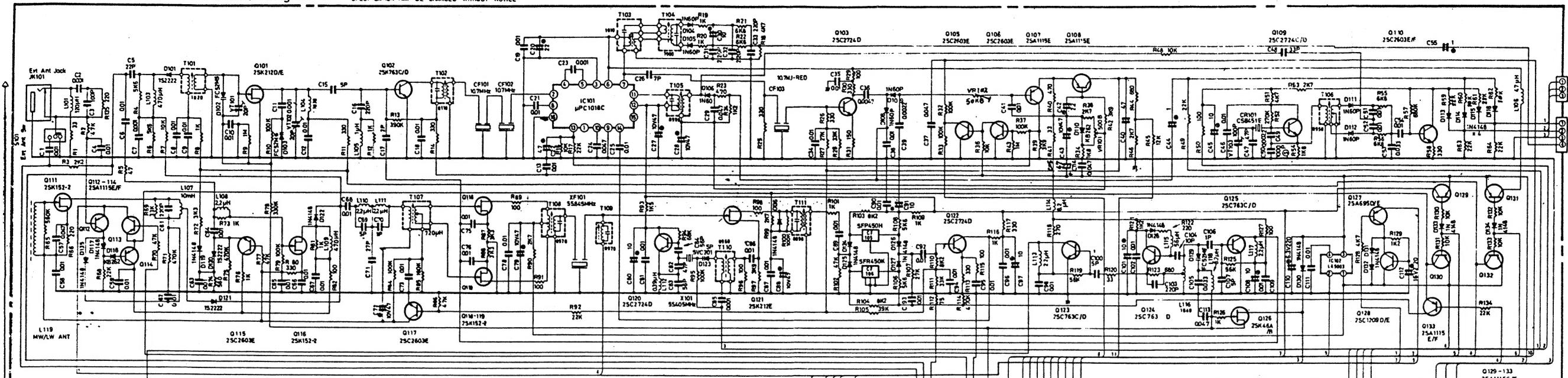


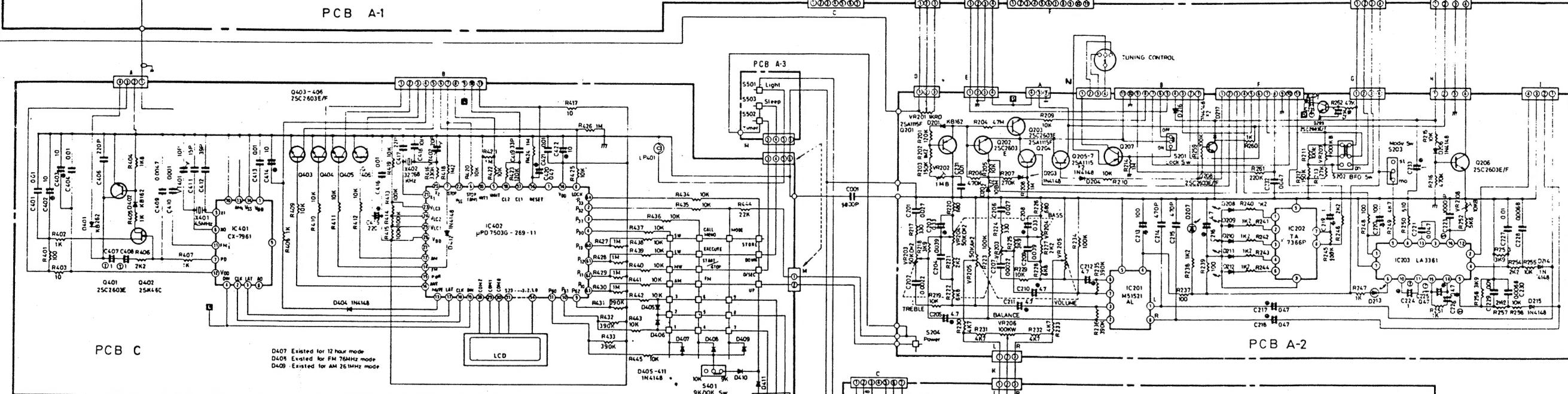


| | |
|--------------------|--------------------------|
| BESTELL-NR. | 1270206 |
| GERÄTEBEZEICHNUNG | UNIV.-WELTEMPFAENGER |
| WARENGATTUNG | 650 |
| AUSFÜHRUNGS-NR. | 001 |
| GERÄTEBESCHREIBUNG | PLL.15-BAND STEREO U.KH. |
| PRIVILEGS | TR 3061 |
| LIEFERANTEN-NR. | 5949 |
| PREIS | 498.00 |
| KATALOG | 862 |
| GARANTIEZEIT | 6 |
| KD-SEKTOR | R |
| HEIM/BRINGE | WERKSTATT |
| BETREUUNG | EIGEN |
| KOSTENTRÄGER | EIGEN |
| REPARATURFAEHIG | JA |





PCB A-1



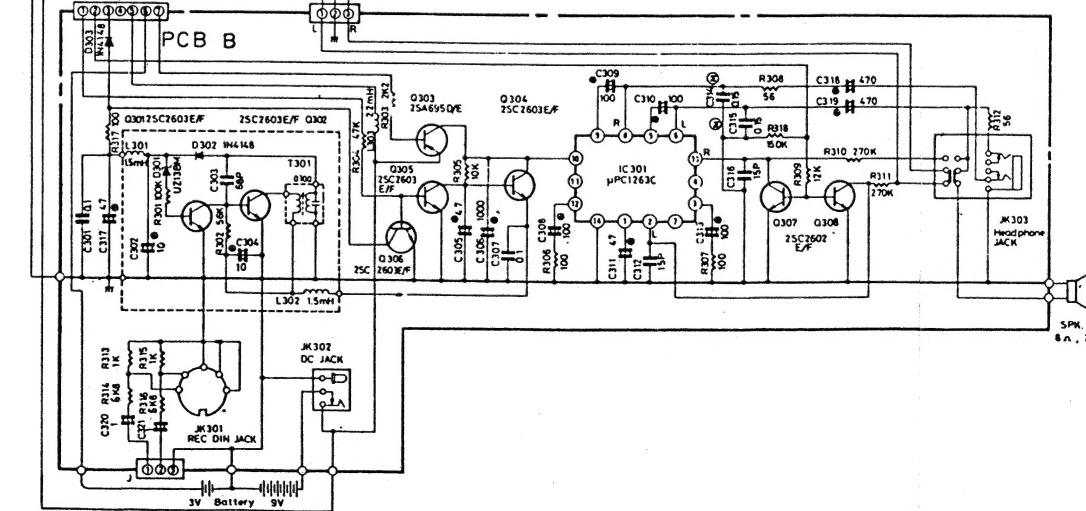
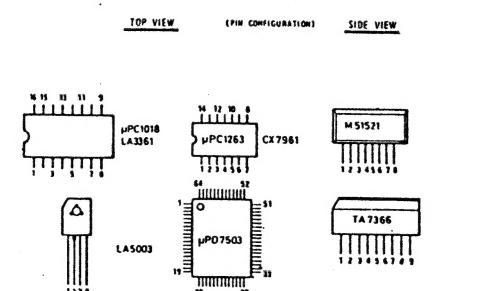
PCB

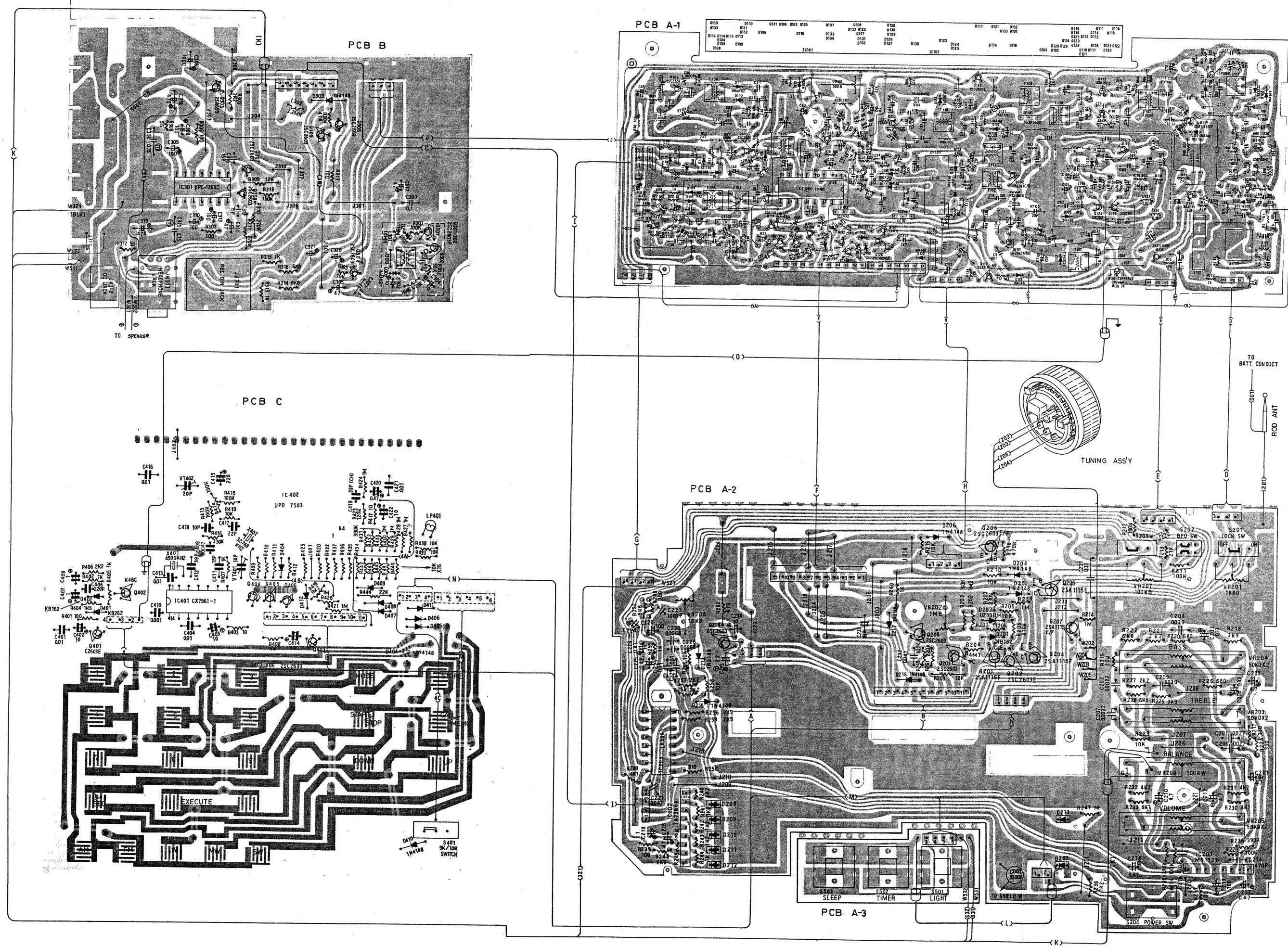
D407 Existed for 12 hour mode
D408 Existed for FM 76MHz mode
D409 Existed for AM 261MHz mode

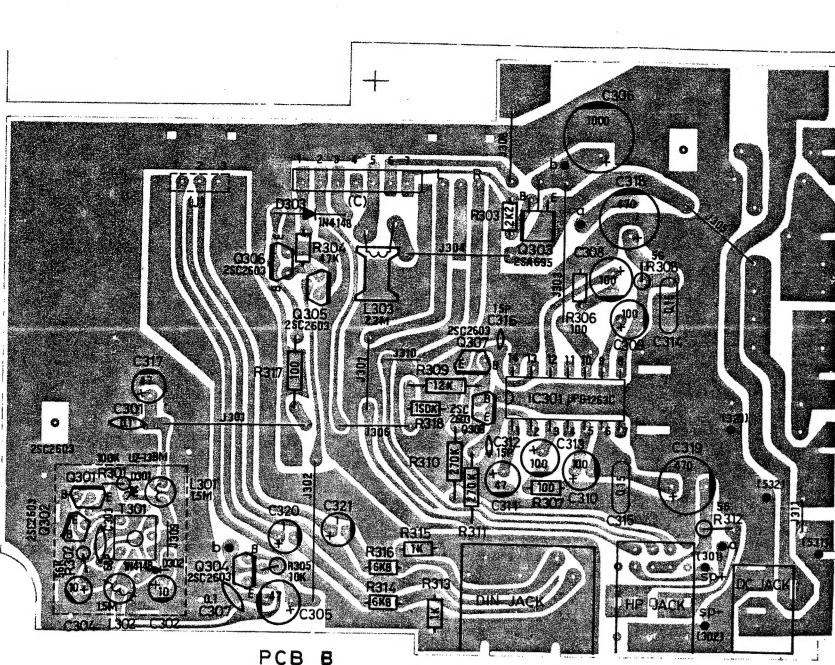
NOTES

BOTTOM VIEW

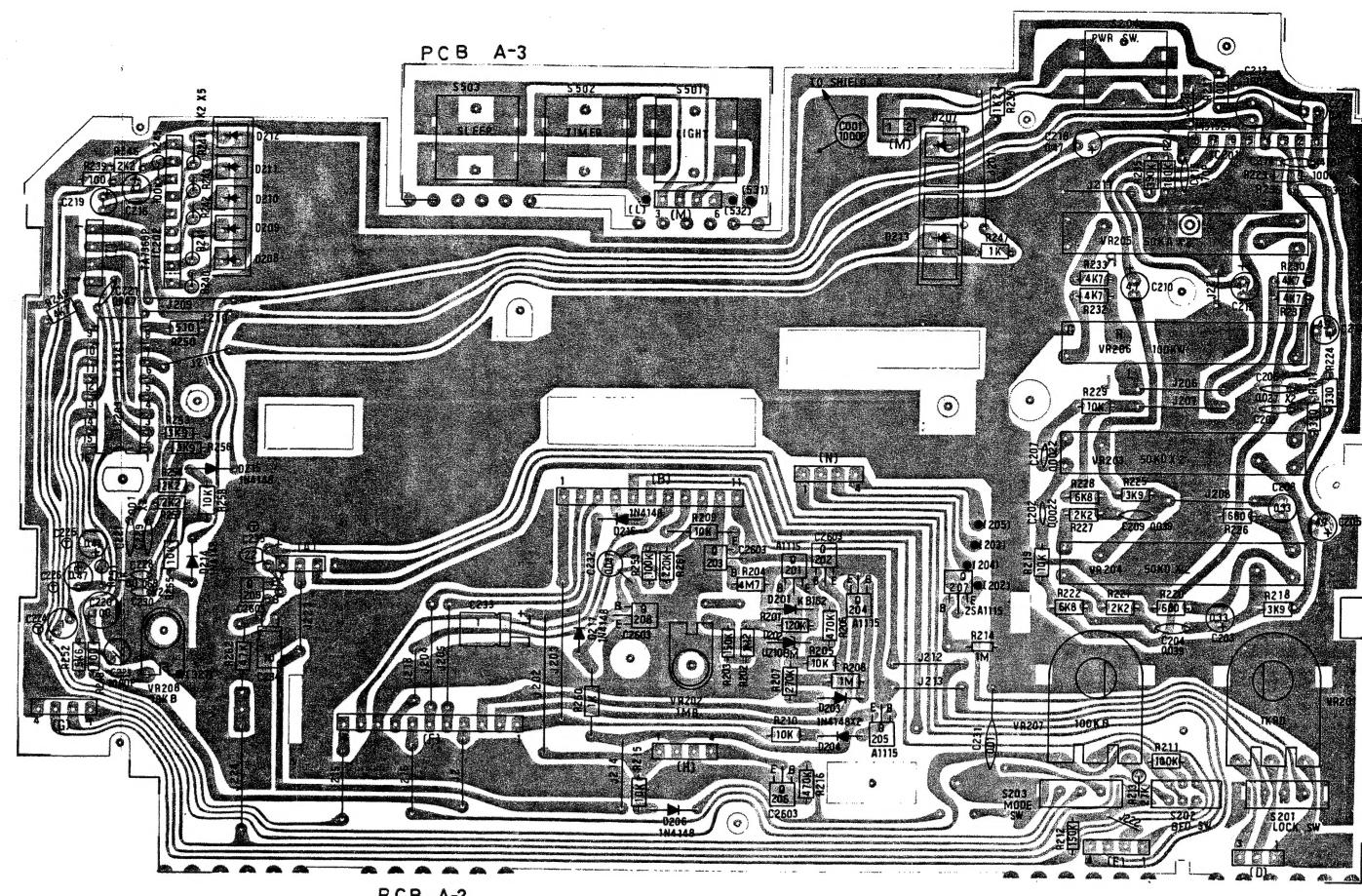
Resistance in Ω , $K=10^3\Omega$, $M=10^4\Omega$
 Capacitance in μF , $P=10^6\mu F$
 Mylar Capacitor ----- ⑦
 Polystyrene Capacitor ----- ⑧
 Electrolytic Capacitor ----- ⑨
 Tantalum Capacitor ----- ⑩
 Tuber Ceramic Capacitor ----- ⑪
 No mark---Ceramic Capacitor



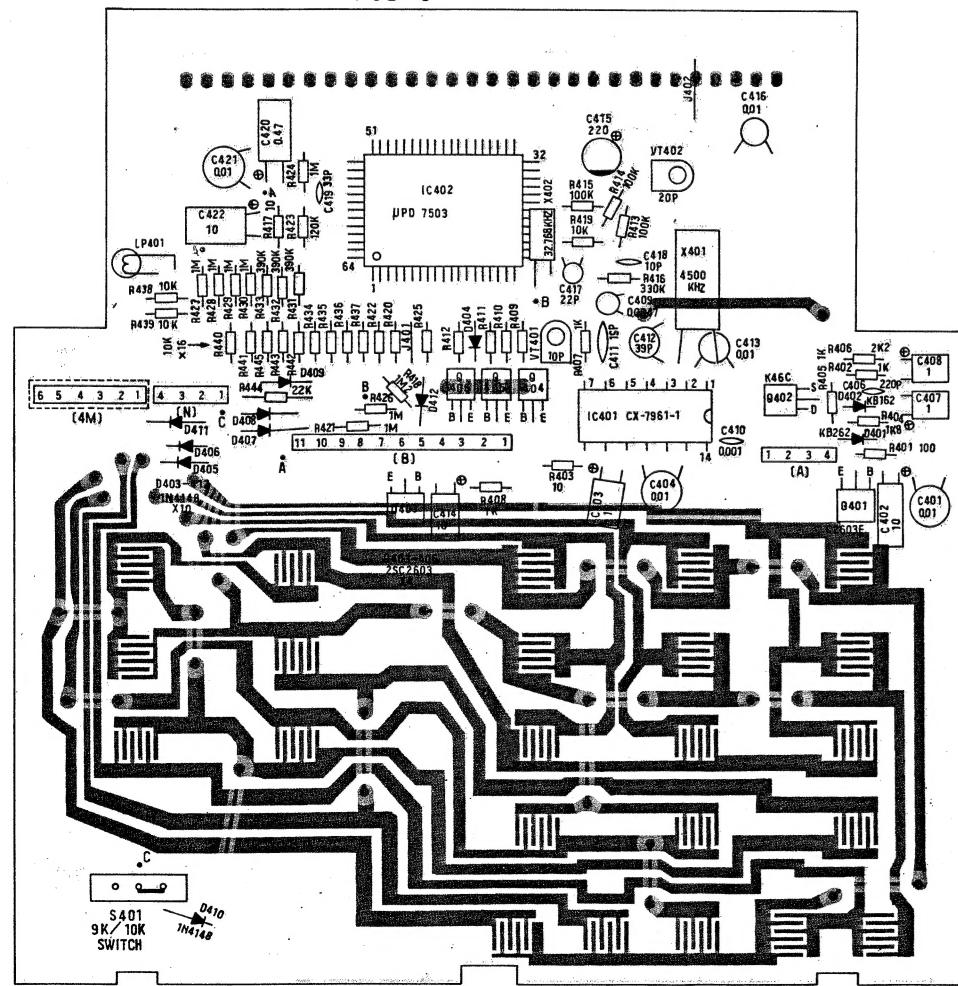




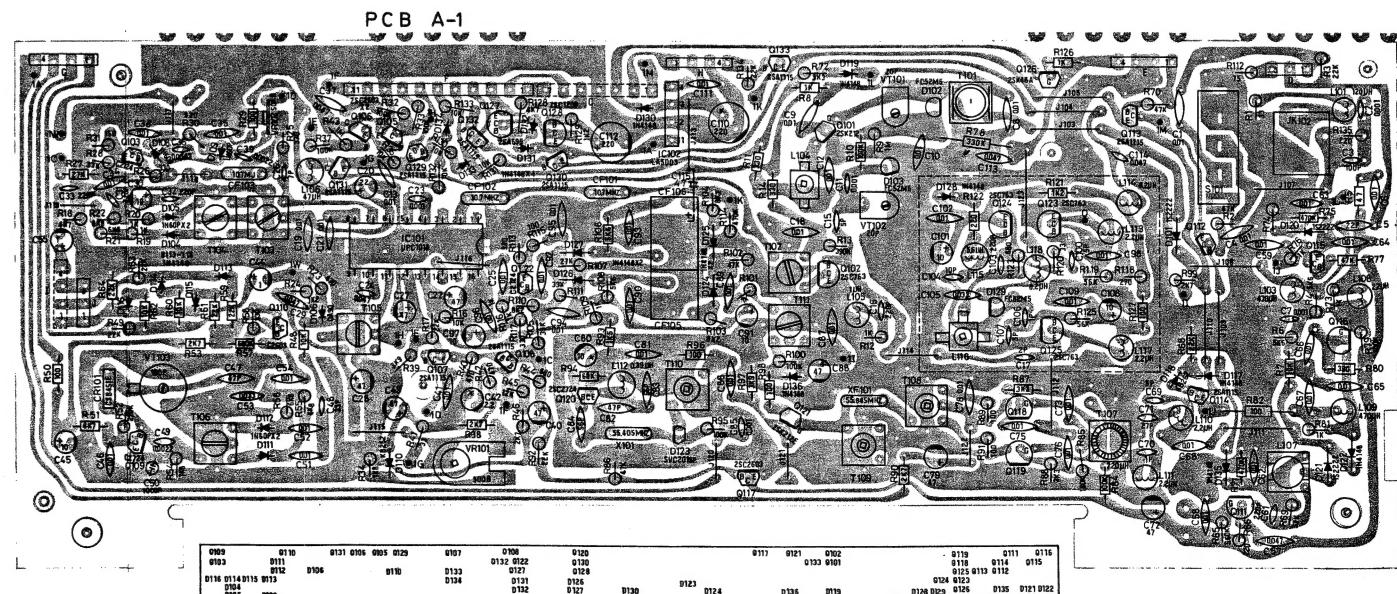
PCB B



PCB A-



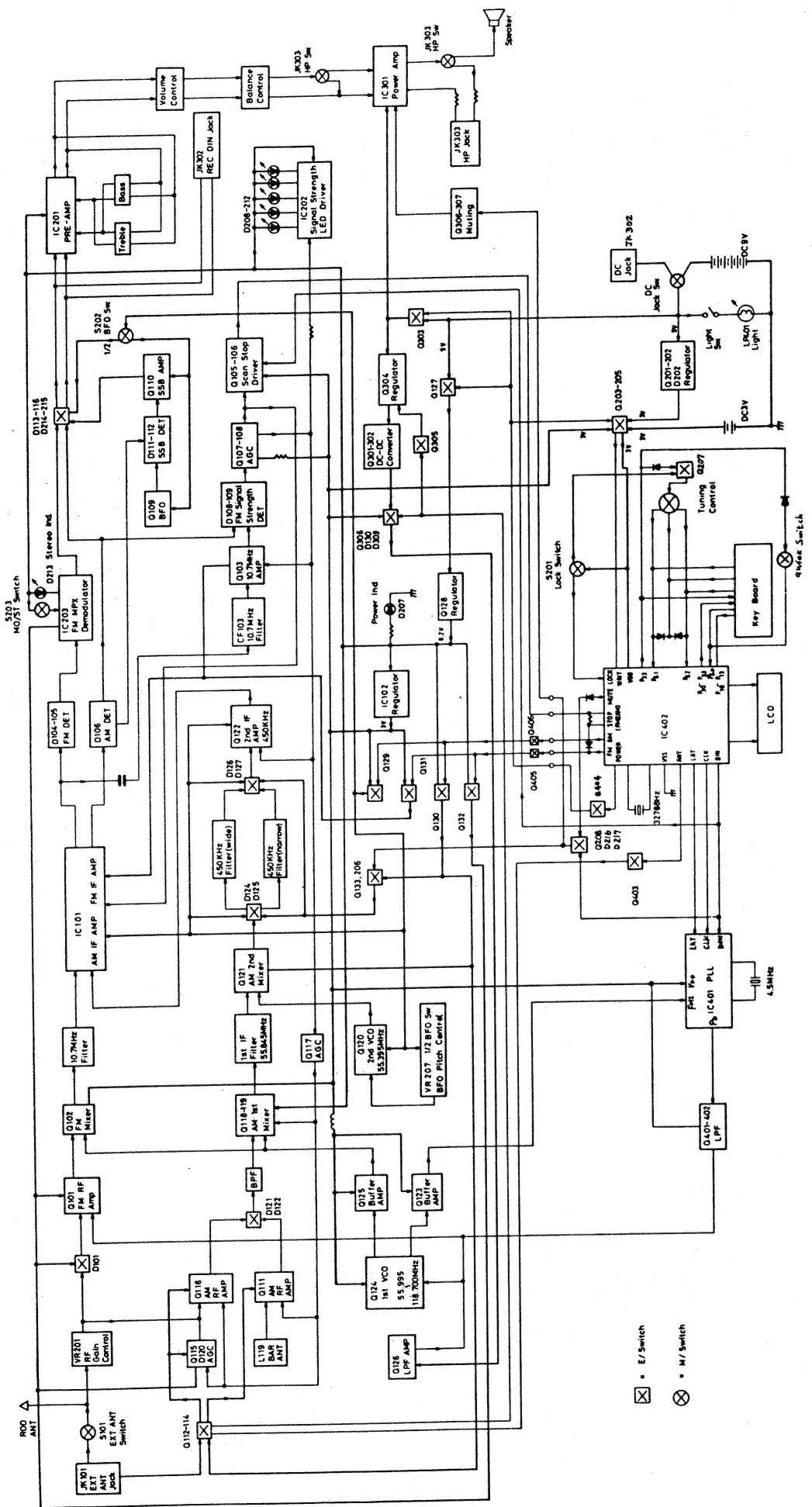
PCB C



PCB A

TUNER ALIGNMENT INSTRUCTION

ATS-803 BLOCK DIAGRAM



1. V_{DD} ALIGNMENT (Main power supply voltage > 10V)

* CONDITION: Power "OFF"

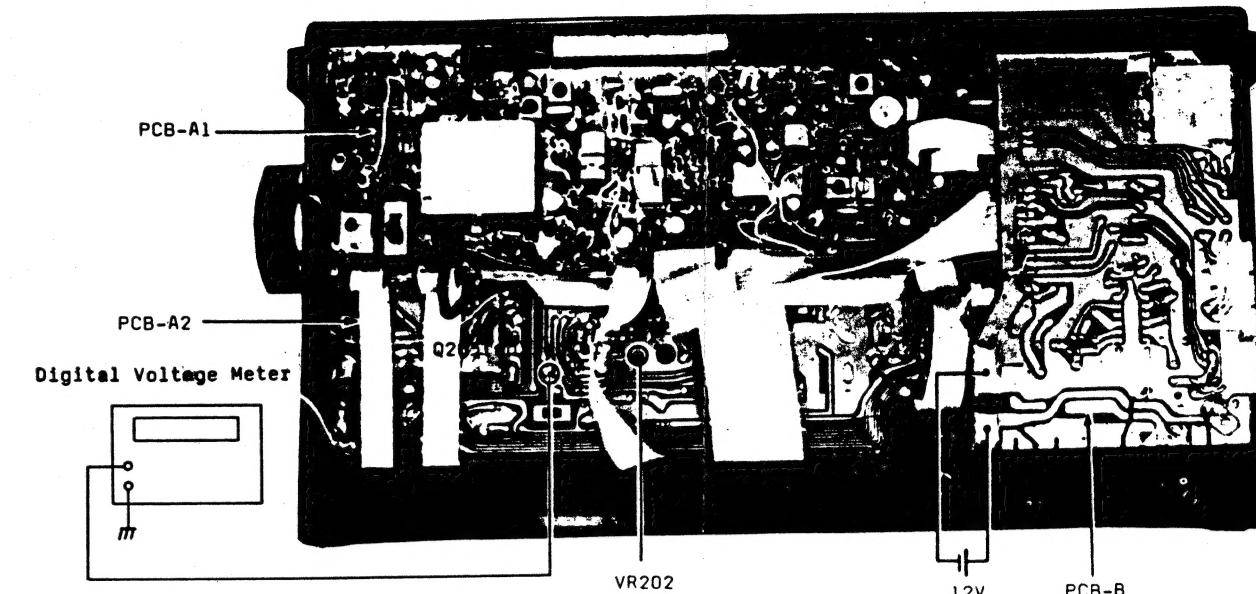
Connect main power supply voltage with 12V DC

* INSTRUMENT CONNECTION:

Connect a digital voltage meter to the collector terminal of Q205 and ground.

* ADJUST POINT & METHOD:

Adjust VR202 thru the hole on the bottom side of PCB-A2 to read the V_{DD} voltage being 3.05V

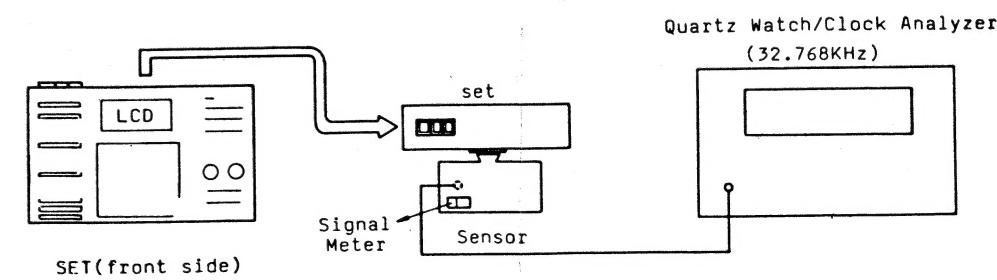


2. CLOCK TIME ACCURACY ALIGNMENT

* CONDITION: Power "OFF"

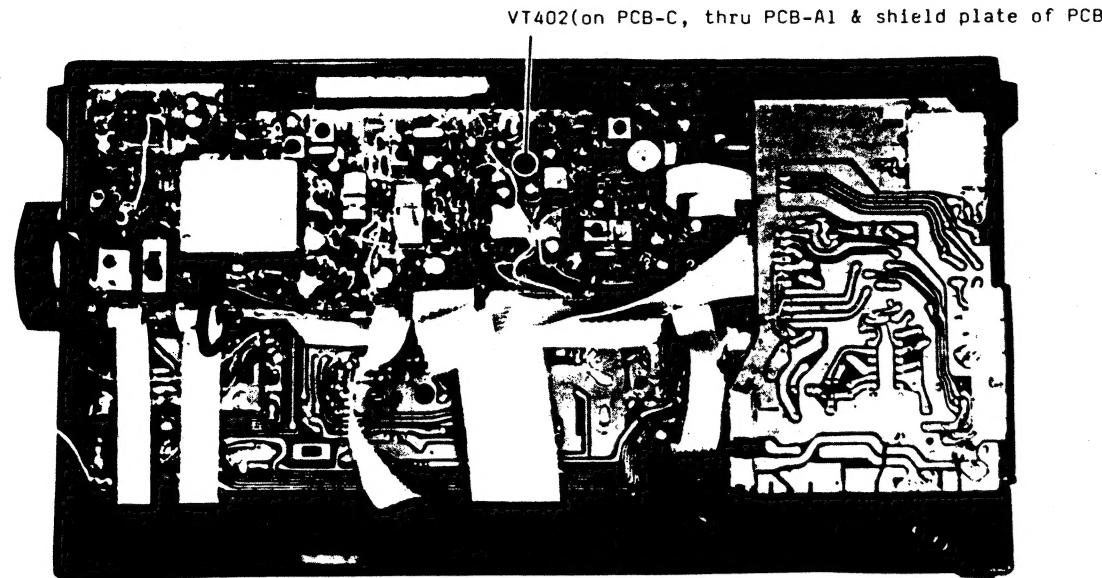
* INSTRUMENT CONNECTION:

Put LCD display near the sensor of Quartz Watch/Clock Analyzer and move the set to the position to get the Max.signal indicated.



* ADJUST POINT & METHOD:

Adjust VT402 for zero error (± 0 ppm or ± 0 second/month) indicated on Quartz Watch/Clock Analyzer.

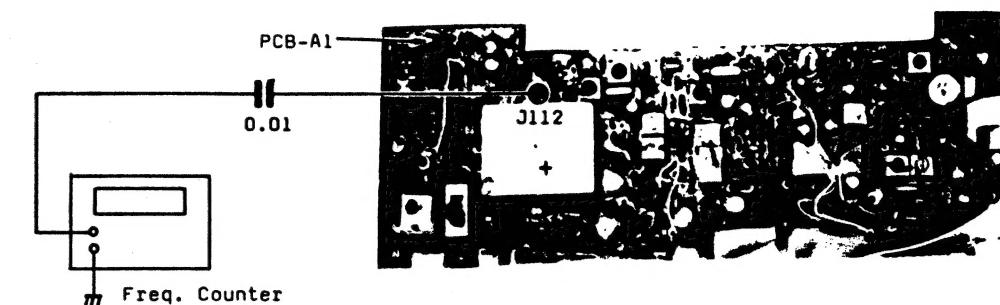


4. PLL FREQUENCY ALIGNMENT

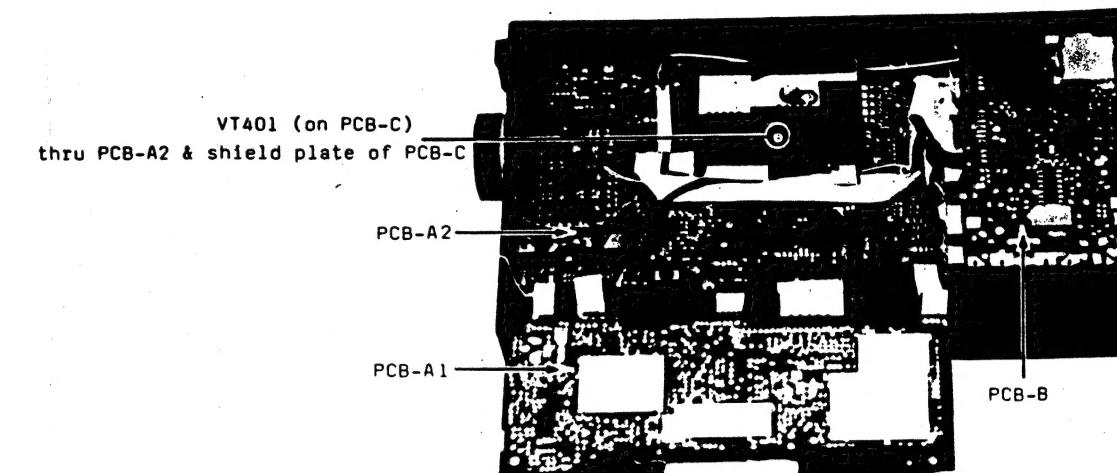
* CONDITION: Power "ON" band "FM" FREQ. "108MHz"

* INSTRUMENT CONNECTION:

Connect a freq. counter to J112 and ground.



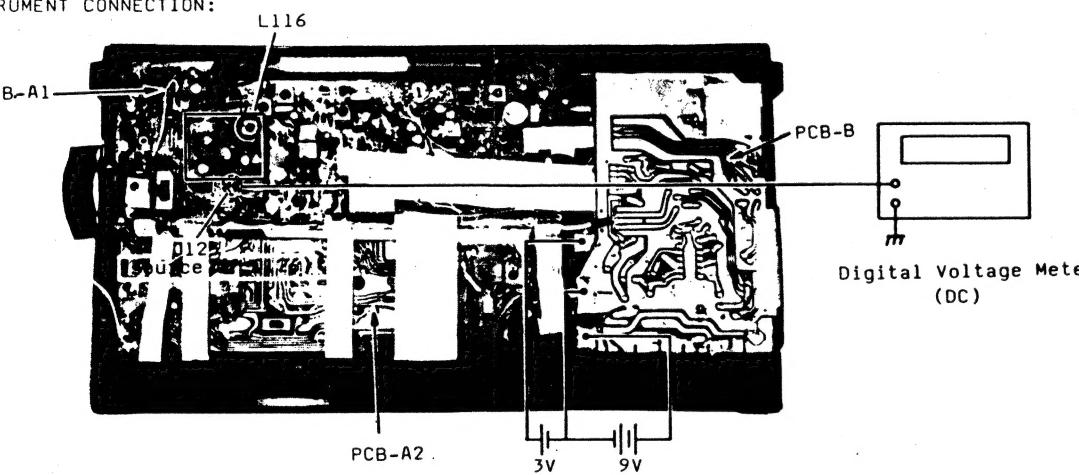
* ADJUST POINT & METHOD: Adjust VT401 for the counter reading is EXACT 118700KHz



5. VC01 VOLTAGE RANG ALIGNMENT

* CONDITION: Power "ON"
FM band 108MHz
LW band 150KHz (BFO switch "OFF")

* INSTRUMENT CONNECTION:



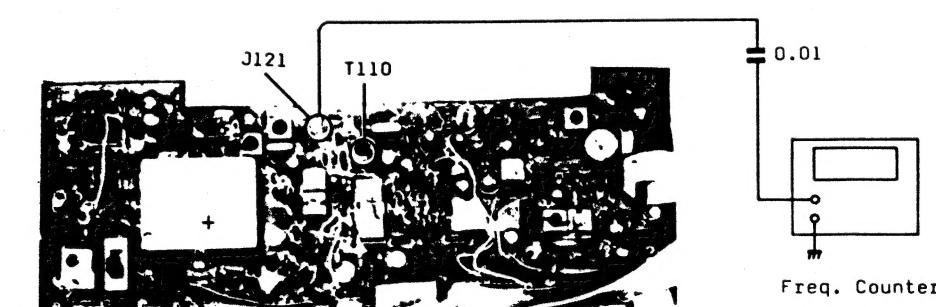
* ADJUST POINT & METHOD:

- Open the shield cover and set FM 108MHz, adjust L116 to the reading of meter to 9.2-10V DC
- Then set LW 150KHz to check the reading must be higher than 1.30V
- Re-cover the shield cover

5. AM 2nd LOCAL OSC ALIGNMENT

* CONDITION: Power "ON"
band "AM" any freq. (BFO switch "OFF")

* INSTRUMENT CONNECTION: Connect freq. counter to J121 and ground.



* ADJUST POINT & METHOD: Adjust T110 for the counter reading is 55395KHz

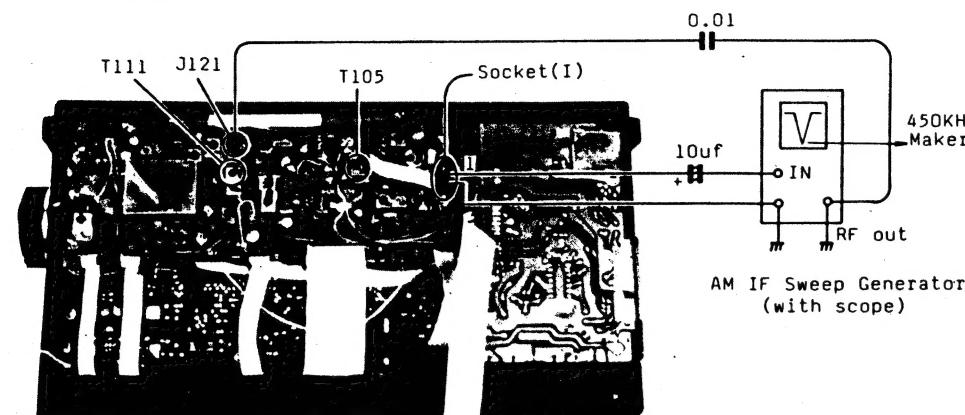
CAUTION: Because the counter connected to J121 cause loading to the circuit, so, the reasonable adjust reading must be higher than 55395KHz. (You can adjust T110 for reading 55397KHz) and T110 must be carefully readjusted on the process will be mentioned later

6. AM 2nd IF ALIGNMENT

* CONDITION: Power "ON"

Tune band "AM" any freq. (BFO switch "OFF")

* INSTRUMENT CONNECTION: AM IF sweep generator RF input to J121 terminal (1) of socket (I) connect to sweep scope input terminal



* ADJUST POINT & METHOD:

- Adjust T111 for Max. 450KHz output
- Adjust T105 for Max. 450KHz output
- Repeat a & b until 450KHz output is Max.

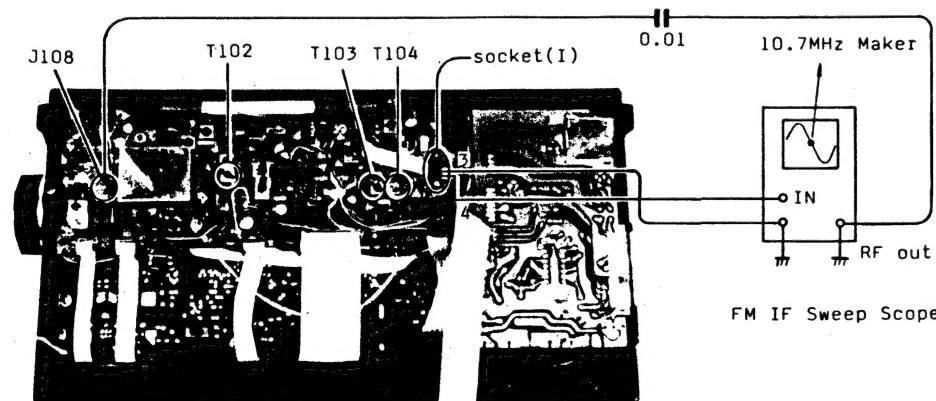
7. FM IF ALIGNMENT

* CONDITION: Power "ON"

Band "FM" any freq.

* INSTRUMENT CONNECTION:

FM IF Sweep Generator RF input to J108 terminal (4) of socket (I) connected to sweep scope input terminal



* ADJUST POINT & METHOD:

Adjust T102, T103, T104 for Max. output and best symmetrical S curve

8. AM SENSITIVITY ALIGNMENT

* CONDITION: Power "ON"

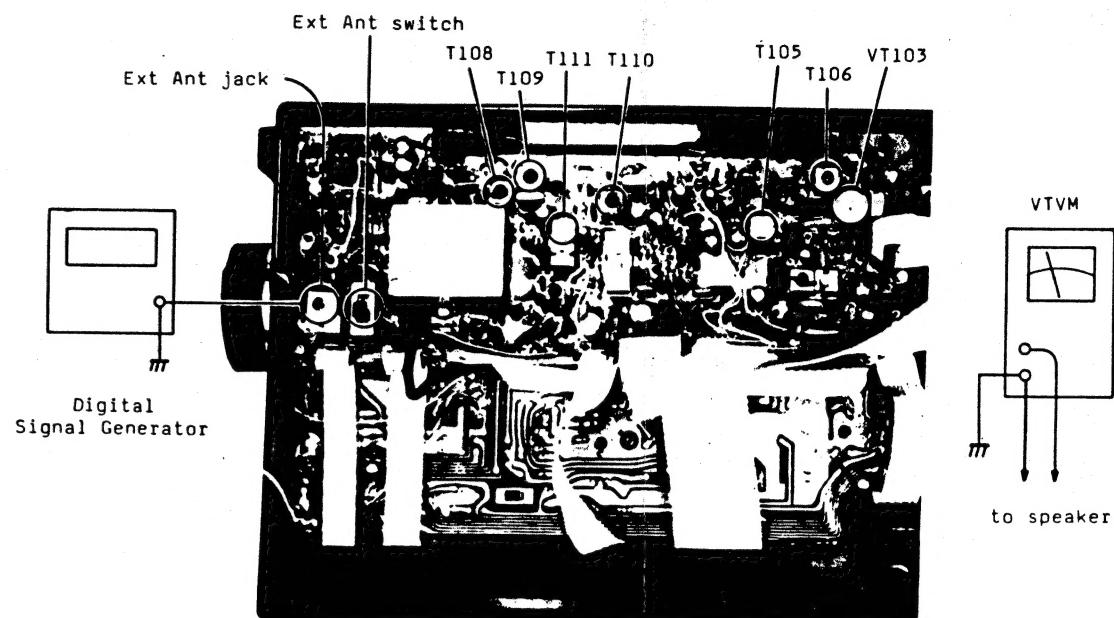
band "SW" any freq. BFO switch "OFF"

RF GAIN "MAX" 30%, 1KHz Mod. Ext Ant switch on "EXT" position

* INSTRUMENT CONNECTION:

Signal generator output fed to Ext Ant jack.

VTVM connect to speaker



* ADJUST POINT AND METHOD:

- Tune the radio and the signal generator to EXACT same freq.
- Adjust T108, T109 for Max. Audio output.
- Adjust T111, T105 for Max. Audio output.
- Carefully adjust T110 for Max. Audio output.
- Repeat a-d for Max. Audio output.
- Detune the signal generator +4KHz and -4KHz from the radio freq. to check the output difference, the difference should be within 3db, otherwise, adjust T110 slightly and recheck. Carefully adjust T110 to make them.
- For best performance, output are nearly the same value.

9. BFO ALIGNMENT

* CONDITION: Power "ON"

band "SW" any freq. BFO switch "ON"

BFO pitch "Center" position

Signal Generator no modulation (callier only)

* INSTRUMENT CONNECTION:

Same as No. 8 (AM Sens. Alignment)

* ADJUST POINT AND METHOD:

tune the radio and the Signal Generator to exact same freq.

- Tune the radio and the Signal Generator to exact same freq.
- Adjust VT103 for zero best (Be sure the BFO pitch control be in the center position)

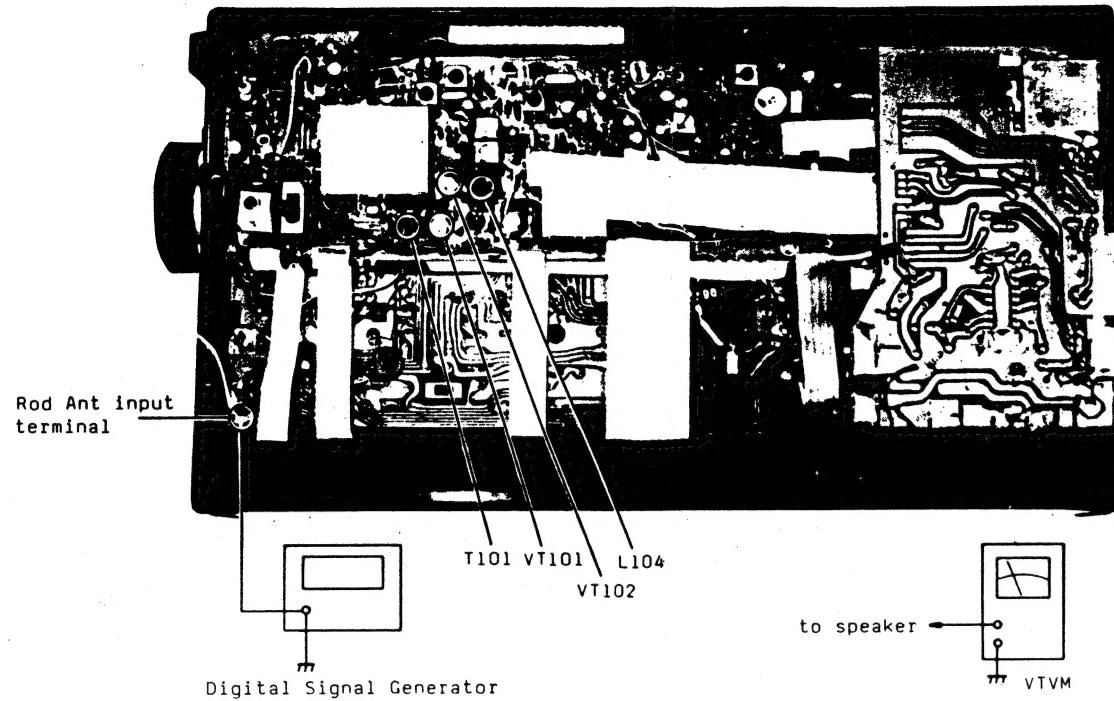
See Fig. of No. 8

10. FM SENSITIVITY ALIGNMENT

* CONDITION: Power "ON"
band "FM" 90MHz, 106MHz. RF GAIN "MAX"
22.5KHz Dev. 1KHZ mod.

* INSTRUMENT CONNECTION:

Signal Generator output fed to the terminal where Rod Ant is connected.
VTVM connect to speaker



* ADJUST POINT AND METHOD:

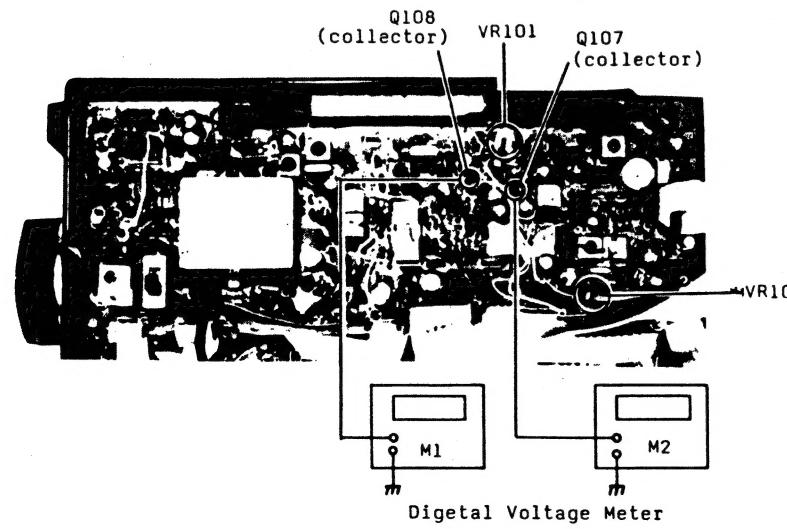
- Tune to 90MHz adjust L104, T101 for Max. output
- Tune to 106MHz adjust VT102, VT101 for Max. output
- Repeat a-b until get best sens. on these two freq.

11. SIGNAL LEVEL & STOP LEVEL ALIGNMENT

* CONDITION: Power "ON"
band "AM" 26100KHz BFO switch "OFF"
(be sure there is no signal fed in or recept by the radio)

* INSTRUMENT CONNECTION:

Connect a digital voltage meter M1 to the collector of Q108 and another digital voltage meter M2 to the collector of Q107



* ADJUST POINT AND METHOD:

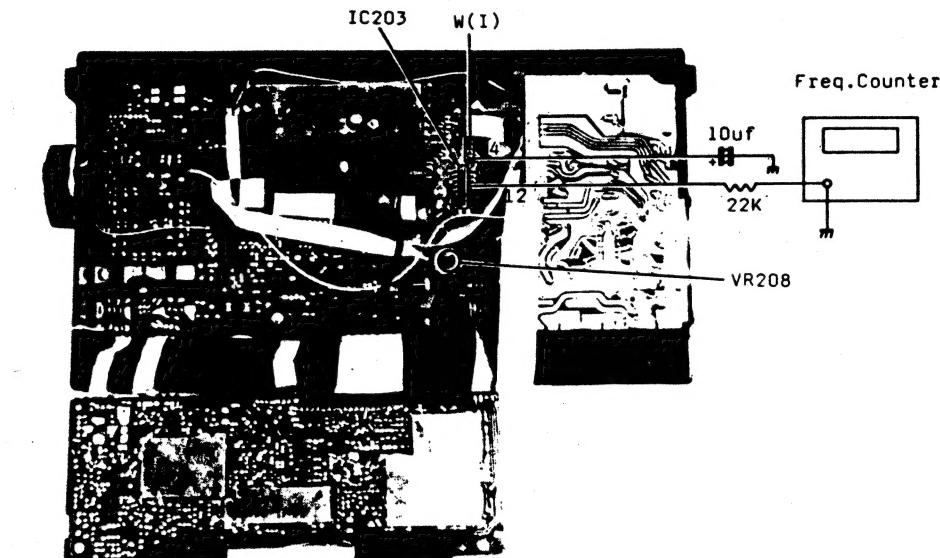
- Adjust VR101 for M1 reading 1.95V.
- Adjust VR102 for M2 reading 0.5V
- Repeat a-b until the M1, M2 reading 1.95V and 0.5V

12. MPX ALIGNMENT

* CONDITION: Power "ON"
band "FM" any freq. FM mode switch on Stereo position

* INSTRUMENT CONNECTION:

By pass wire (4) of W(I) or Pin 2 of IC203 to ground with 10uf. connect a freq counter to pin 12 (series with 22K resistor) of IC203



* ADJUST POINT AND METHOD: Adjust VR208 for counter reading is 19KHz

| ZEILE | POSITION | SYM | BEZEICHNUNG | ET-NUMMER |
|-------|-----------|-----|---------------------------------|-----------|
| 1 | | | | |
| 2 | 2018000 | | RUECKWAND | 730 849 7 |
| 3 | 2018010 | | BATTERIEFACHDECKEL | 730 850 5 |
| 4 | 2018020 | | PLASTIKRAHMEN | 730 889 3 |
| 5 | 2018030 | | BATTERIEBEHAELTER | 730 851 3 |
| 6 | 2018040 | | PLASTIKRAHMEN FUER KNOEPFE | 730 852 1 |
| 7 | 2018050 | | PLASTIKHALTER FUER LAUTSPRECHER | 730 853 9 |
| 8 | 2018060 | | PLASTIKHALTER,DIODEN | 730 854 7 |
| 9 | 2018070 | | HALTER,LINKS | 730 855 4 |
| 10 | 2018080 | | HALTER,RECHTS | 730 856 2 |
| 11 | 2018100 | | HALTER, FUER TELESKOPANTENNE | 730 857 0 |
| 12 | 2018110 | | REFLECTOR | 730 858 8 |
| 13 | 2018120 | | KLARSICHTSCHEIBE | 730 859 6 |
| 14 | 2104030 | | BATTERIEKONTAKT,PLUS | 730 861 2 |
| 15 | 2104050 | | BATTERIEKONTAKT,MINUS | 730 862 0 |
| 16 | 2118000 | | TELESKOPANTENNE | 730 860 4 |
| 17 | 2118010 | | BATTERIEKONTAKT,MINUS | 730 863 8 |
| 18 | 2118020 | | BATTERIEKONTAKT,PLUS | 730 864 6 |
| 19 | 2118030 | | BATTERIEKONTAKT,PLUS-MINUS | 730 865 3 |
| 20 | 2118050 | | KONTAKTGEBER | 730 866 1 |
| 21 | 2118060 | | HALTER FUER SCHULTERRIEMEN | 730 867 9 |
| 22 | 2118070 | | METALLBUEGEL | 730 868 7 |
| 23 | 2118080 | | HALTER FUER DISPLAY | 730 869 5 |
| 24 | 2318030 | | ABDECKSCHEIBE | 730 870 3 |
| 25 | 2418000 | | GUMMI-KONTAKTPLATTE | 730 871 1 |
| 26 | 2518000 | | SENDERWAHLKNOPF KPL. | 730 872 9 |
| 27 | 2518010 | | ANTENNEANSCHLUSSADAPTER | 730 873 7 |
| 28 | 3011800 | | VORDERTEIL | 730 874 5 |
| 29 | 3081800 | | KNOPF STEREO-MONO | 730 875 2 |
| 30 | 3091800 | | KNOPF,BFO,LOCK | 730 876 0 |
| 31 | 3101800 | | KNOPF,BFO,RF GAIN | 730 877 8 |
| 32 | 3111800 | | KNOPF,SCHEIBEREGLER | 730 878 6 |
| 33 | 3121800 | | KNOPF,MEMORY 0-9 | 730 879 4 |
| 34 | 3131800 | | KNOPF,LIGHT,TIMER,SLEEP | 730 880 2 |
| 35 | 3141800 | | KNOPF,BEREICH | 730 881 0 |
| 36 | 3151800 | | KNOPF,UP,DOWN | 730 882 8 |
| 37 | 3161800 | | KNOPF,MODE-CALL-MEMO | 730 883 6 |
| 38 | 3171800 | | KNOPF,EXECUTE | 730 884 4 |
| 39 | 3181800 | | KNOPF,POWER | 730 885 1 |
| 40 | 3211800 | | ZIERPLATTE FUER KNOEPFE | 730 886 9 |
| 41 | 3231800 | | ZIERPLATTE FUER DISPLAY | 730 887 7 |
| 42 | | | SCHULTERRIEMEN | 730 888 5 |
| 43 | | | NETZTEIL 9V | 730 890 1 |
| 44 | | | | |
| 45 | CF101,102 | | KERAMIK-FILTER SFE 10.7 MAS-A | 730 846 3 |
| 46 | CF103 | | KERAMIK-FILTER SFE 10.7 MJ-A | 730 847 1 |
| 47 | CF105 | | KERAMIK-FILTER SFP 450H | 730 844 8 |
| 48 | CF106 | | KERAMIK-FILTER SFR 450K | 730 845 5 |
| 49 | CR101 | | KERAMIK-FILTER 451 KHZ | 730 838 0 |
| 50 | D101 | | DIODE 1S 2222 | 948 051 8 |
| 51 | D102,103 | | CAP.-DIODE FC-52M-5 | 730 809 1 |
| 52 | D104-109 | | DIODE OA 90 | 175 029 8 |
| 53 | D110 | | DIODE KB 262 | 176 464 6 |
| 54 | D111,112 | | DIODE OA 90 | 175 029 8 |
| 55 | D113-117 | | DIODE 1 N 4148 | 175 540 4 |
| 56 | D118,401 | | DIODE KB 262 | 176 464 6 |
| 57 | D119 | | DIODE 1 N 4148 | 175 540 4 |
| 58 | D120,121 | | DIODE 1S 2222 | 948 051 8 |
| 59 | D122,124 | | DIODE 1 N 4148 | 175 540 4 |
| 60 | D123 | | VARICAP DIODE SVC-201 | 924 760 2 |
| 61 | D125-128 | | DIODE 1 N 4148 | 175 540 4 |
| 62 | D129 | | CAP.-DIODE FC-52M-5 | 730 809 1 |
| 63 | D130-136 | | DIODE 1 N 4148 | 175 540 4 |
| 64 | D201,402 | | DIODE KB 162 | 920 794 5 |
| 65 | D202 | | ZENERDIODE RD 10 EB B2 | 952 236 8 |
| 66 | D203-206 | | DIODE 1 N 4148 | 175 540 4 |
| 67 | D207-212 | | LEUCHTDIODE LN 210 RP | 953 936 2 |
| 68 | D213 | | LED LN 342 GP | 986 698 9 |
| 69 | D214-217 | | DIODE 1 N 4148 | 175 540 4 |
| 70 | D301 | | ZENERDIODE RD 13 EB | 959 478 9 |
| 71 | D302,303 | | DIODE 1 N 4148 | 175 540 4 |
| 72 | D404-412 | | DIODE 1 N 4148 | 175 540 4 |
| 73 | IC101 | | IC UPC 1018 C | 951 372 2 |
| 74 | IC102 | | IC LA 5003 | 730 803 4 |
| 75 | IC201 | | IC M 51521 L | 951 176 7 |
| 76 | IC202 | | IC TA 7366 P | 730 804 2 |
| 77 | IC203 | | IC LA 3361 | 952 038 8 |
| 78 | IC301 | | IC UPC 1263 C | 730 805 9 |
| 79 | IC401 | | IC CX 7961-1 | 730 806 7 |
| 80 | IC402 | | IC UPD 7503C-269-11 | 730 802 6 |
| 81 | JK101 | | ANTENNE-BUCHSE | 730 837 2 |
| 82 | JK301 | | DIN-BUCHSE | 730 836 4 |
| 83 | JK302 | | SPANNUNGS-BUCHSE | 730 835 6 |

| ZEILE | POSITION | SYM BEZEICHNUNG | ET-NUMMER |
|-------|-----------|--------------------------|-----------|
| 84 | JK303 | KOPFHÖRER-BUCHSE | 730 834 9 |
| 85 | LI04 | FM-FILTER | 730 821 6 |
| 86 | LI16 | FM-FILTER | 730 816 6 |
| 87 | LI19 | FERRITANTENNE M.T SPULE | 730 810 9 |
| 88 | LP401 | LAMPE 8V 50 MA | 730 848 9 |
| 89 | Q101 | TRANSISTOR 2 SK 212 F | 965 930 7 |
| 90 | Q102 | TRANSISTOR BF 200 | 175 901 8 |
| 91 | Q103,109 | TRANSISTOR 2 SC 2724 C-D | 730 807 5 |
| 92 | Q105,106 | TRANSISTOR 2 SC 2603 F | 965 943 4 |
| 93 | Q107,108 | TRANSISTOR 2 SA 1115 F | 965 942 6 |
| 94 | Q110 | TRANSISTOR 2 SC 2603 F | 965 943 4 |
| 95 | Q111,116 | TRANSISTOR 2 SK 152 | 965 919 4 |
| 96 | Q112-114 | TRANSISTOR 2 SA 1115 F | 965 942 6 |
| 97 | Q115,117 | TRANSISTOR 2 SC 2603 F | 965 943 4 |
| 98 | Q118,119 | TRANSISTOR 2 SK 152 | 965 919 4 |
| 99 | Q120,122 | TRANSISTOR 2 SC 2724 C-D | 730 807 5 |
| 100 | Q121 | TRANSISTOR 2 SK 212 F | 965 930 7 |
| 101 | Q123-125 | TRANSISTOR BF 200 | 175 901 8 |
| 102 | Q126,402 | TRANSISTOR 2 SK 46 C | 730 808 3 |
| 103 | Q127,303 | TRANSISTOR BC 636-16 | 952 194 9 |
| 104 | Q128 | TRANSISTOR 2 SC 1209 D | 924 997 0 |
| 105 | Q129-133 | TRANSISTOR 2 SA 1115 F | 965 942 6 |
| 106 | Q201,204 | TRANSISTOR 2 SA 1115 F | 965 942 6 |
| 107 | Q202,203 | TRANSISTOR 2 SC 2603 F | 965 943 4 |
| 108 | Q205,207 | TRANSISTOR 2 SA 1115 F | 965 942 6 |
| 109 | Q206 | TRANSISTOR 2 SC 2603 F | 965 943 4 |
| 110 | Q208,209 | TRANSISTOR 2 SC 2603 F | 965 943 4 |
| 111 | Q301-308 | TRANSISTOR 2 SC 2603 F | 965 943 4 |
| 112 | Q401-406 | TRANSISTOR 2 SC 2603 F | 965 943 4 |
| 113 | S101 | SCHIEBESCHALTER | 730 833 1 |
| 114 | S201,203 | SCHIEBESCHALTER | 730 831 5 |
| 115 | S202 | SCHIEBESCHALTER | 730 832 3 |
| 116 | S204 | TIPSCHALTER | 730 830 7 |
| 117 | S401 | SCHIEBESCHALTER | 730 831 5 |
| 118 | S501-503 | TIPSCHALTER | 730 830 7 |
| 119 | T101 | FM-FILTER | 730 820 6 |
| 120 | T102 | FM-ZF-FILTER | 730 819 0 |
| 121 | T103 | FM-ZF-FILTER | 730 815 8 |
| 122 | T104 | FM-ZF-FILTER | 730 814 1 |
| 123 | T105 | AM-ZF-FILTER | 730 813 3 |
| 124 | T106 | SSB-FILTER | 730 822 4 |
| 125 | T107 | BPF-FILTER | 730 823 2 |
| 126 | T108,109 | AM-ZF-FILTER | 730 812 5 |
| 127 | T110 | FILTER, 55395 KHZ | 730 811 7 |
| 128 | T111 | AM-ZF-FILTER | 730 817 4 |
| 129 | T301 | DC-FILTER | 730 818 2 |
| 130 | VR201 | DREHPOTI 1K | 730 828 1 |
| 131 | VR203,204 | SCHIEBEREGLER 2X50 KD | 730 825 7 |
| 132 | VR205 | SCHIEBEREGLER 2X50 KA | 730 824 0 |
| 133 | VR206 | SCHIEBEREGLER 100 KW | 730 826 5 |
| 134 | VR207 | DREHPOTI 100 K | 730 827 3 |
| 135 | X101 | QUARZ 55.405 MHZ | 730 842 2 |
| 136 | X401 | QUARZ 4500 KHZ | 730 841 4 |
| 137 | X402 | QUARZ 32.768 KHZ | 730 839 6 |
| 138 | XF101 | FILTER, 55.845 MHZ | 730 840 6 |

ENDE